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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09 974,882	10 10 2001	Edward M. Nolan	GENE1320-2	8790

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EXAMINER

SULLIVAN, DANIEL M

ART UNIT PAPER NUMBER

1636

8

DATE MAILED: 10 19 2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Application No.

09/974,882

Applicant(s)

NOLAN ET AL.

## Office Action Summary

Examiner

Daniel M Sullivan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If the period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 23-25 is/are pending in the application.
- 4a) Of the above claim(s) 1-20 and 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 21, 24 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) 1-20 and 23 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☒ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This is a First Office Action on the Merits of the pending application filed December 10, 2001, which is a continuation of 09 453,610, filed December 3, 1999 now abandoned, and claims priority to Provisional applications 60 110,950 and 60 110,951, both filed December 4, 1998. Claims 1-21 and 23-25 are pending in the application.

### ***Election/Restrictions***

Claims 1-20 and 23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 7.

Applicant's election with traverse of Group V, claims 21, 24 and 25 in Paper No. 7 is acknowledged. The traversal is on the ground(s) that Groups V and VI are closely related. Applicant argues that the restriction is improper because the method of Group V is limited to application of an electric pulse and, therefore, the alternative apparatus cited by the examiner, which do not provide a means to administer an electric pulse, could not be used in the process as claimed. This is not found persuasive because even if, for the sake of argument, the electric field source is a necessary limitation, there are a number of limitations recited in claim 23 that are not necessary to practice the process of Group V. For example, reservoirs for the chromosome and cells need not be integral to the apparatus and mixing of the chromosome and cells can be accomplished by hand without the employment of a controlled pump. Therefore, the process as claimed can clearly be practiced by another materially different apparatus.

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Applicant further argues that the same art would have to be searched for consideration of the Group V methods and the Group VI apparatus. However, given that the process can be practiced by a materially different apparatus, a search of the process cannot be limited to a search of the apparatus alone. Likewise, the additional limitations of the apparatus provide a search burden beyond the burden of search for a process comprising the limitations of Group V.

The requirement is still deemed proper and is therefore made FINAL.

### ***Priority***

Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. § 119(e) as follows:

The second application must be an application for a patent for an invention which is also disclosed in the first application (the parent or provisional application); the disclosure of the invention in the parent application and in the second application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ 2d 1077 (Fed. Cir. 1994).

There is no support for claims 21, 24 and 25 in Provisional Application 60/110,950 or claims 24 and 25 in Provisional Application 60/110,951. Therefore, an effective filing date of December 3, 1999, the filing date of Application 09 453,610, has been used to determine patentability of claims 24 and 25 over the prior art.

### ***Oath/Declaration***

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The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:  
On page 2, the line designated to identify the Application Serial No. of the parent application does not contain a serial number.

### *Drawings*

#### **INFORMATION ON HOW TO EFFECT DRAWING CHANGES**

##### **1. Correction of Informalities -- 37 CFR 1.85**

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the "Notice of Allowability." Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136 for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

##### **2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.**

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

#### **Timing of Corrections**

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Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.185(a). Failure to take corrective action within the set (or extended) period will result in **ABANDONMENT** of the application.

The drawings are objected to for the reasons indicated on the attached PTO-948. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 25 recites the limitation "verifying" in line 1. There is insufficient antecedent basis for this limitation in claim 23, from which claim 25 depends. In the interest of compact prosecution, the claim has been examined on the merits with the assumption that Applicant intends that the claim depend from claim 24.

### ***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 21 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Jaroszeski *et al.*(1994) *Anal. Biochem.* 216:271-275.

The claims are drawn to a method for *ex vivo* introduction of at least one chromosome into a eukaryotic cell, wherein the cell is not a plant cell, said method comprising contacting at

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least one chromosome substantially simultaneously with the application of an electric pulse, wherein the at least one chromosome is a gene-bearing DNA protein complex, a natural human chromosome, a mammalian chromosome, an artificial chromosome, or a yeast chromosome, and wherein said at least one chromosome is encapsulated in a liposome micelle. Please note that because the definition of liposome micelle has not been explicitly set forth by Applicant, the limitation has been given its broadest reasonable interpretation according to *Stedman's Medical Dictionary* definition of micelle, *Any water-soluble aggregate, spontaneously and reversibly, formed from amphiphile molecules*, to include biological membranes. Claim 24 limits the method to a method comprising verifying that the cell has been transformed with at least one chromosome.

Jaroszeski *et al.* teaches a method for *ex vivo* introduction of at least one chromosome into a mammalian cell by cell fusion, wherein heterologous cell types are contacted at the same time that an electric pulse is delivered (see especially the second paragraph in the second column of page 272). The method of Jaroszeski *et al.* further comprises detection of fusion products (i.e. verifying that the cell has been transformed with at least one chromosome) by flow cytometry (see especially Figure 2 and the caption thereto). The method of *ex vivo* introduction of at least one chromosome into a eukaryotic cell and verifying that the cell has been transformed taught by Jaroszeski *et al.* is the same as the method claimed in the instant application.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strauss and Jaenisch (1992) 11:417-422 in view of Chernomordik *et al.* (1991) *Biochim Biophys. Acta* 1070:193-197.

The limitations of the claims are recited above. Strauss and Jaenisch teaches a method for *ex vivo* introduction of at least one artificial chromosome into a mammalian cell wherein said artificial chromosome is encapsulated in a micelle, and further teach verifying that the cell has been transformed with at least one chromosome by selecting for antibiotic resistance (see especially *Transfection of YAC DNA into cells* beginning in the second column of page 419 and continued through the first paragraph on page 420). Strauss and Jaenisch teach all of the limitations of the claims except for the application of an electric pulse when the cells are contacted with the encapsulated at least one chromosome.

Chernomordik *et al.* teaches a method of increasing the binding of liposomes to the cell surface by coadministration of an electrical pulse (see especially Figure 2 and the caption thereto). These teachings demonstrate that liposome mediated introduction of artificial



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chromosomes into mammalian cells was known in the art at the time of filing and that it was also known that coadministration of an electrical pulse significantly increases binding of liposomes to the cell surface. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Strauss and Jaenisch and Chernomordik *et al.* according to the teachings of the instant application in order to improve introduction of artificial chromosomes into mammalian cells. Motivation to combine these teachings comes from Chernomordik *et al.* who teaches that coadministration of an electrical pulse significantly increases binding of liposomes to cells, and from Strauss and Jaenisch who teach, "[a] constraint of this protocol for efficient transfer of large DNA fragments into mammalian cells appears to be the low frequency of transfected cells which have taken up DNA, only a fraction of which carries an intact copy of the YAC DNA" (page 421, column 2, first full paragraph). The prior art teaches the skilled artisan all of the process steps of the claimed invention and provides the motivation to combine these teachings according to the teachings of the instant application. Therefore the claimed invention would be obvious to one of ordinary skill in the art at the time of filing.

### ***Allowable Subject Matter***

Claim 25 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel M Sullivan whose telephone number is 703-305-4448. The examiner can normally be reached on Monday through Friday 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Irem Yucel can be reached on 703-305-1998. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-9105 for regular communications and 703-746-9105 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

dms  
October 8, 2002

JAMES KETTER  
PRIMARY EXAMINER